

I claim:

1. A capacitor discharge system, comprising:

a first capacitor;

5 a second capacitor;

an inductor;

a discharge switching device; and

a charging device; wherein

said charging device places a first electric charge on

10 said first capacitor during a first charging cycle,

said discharge switching device creates a first

electrical path from said first capacitor to said

second capacitor through said inductor during a first

discharge cycle,

15 said charging device places a second electric charge

on said second capacitor during a second charging

cycle, and

said discharge switching device creates a second

electrical path from said second capacitor to said

20 first capacitor through said inductor during a second

discharge cycle.

2. The capacitor discharge system of claim 1, further comprising a motor shaft that interacts with a magnetic field generated by the flow of electric current through said inductor during said first discharge cycle and said second discharge cycle to produce a rotating motion of said motor shaft.

3. The capacitor discharge system of claim 2, wherein said inductor is an electric motor phase winding.

4. The capacitor discharge system of claim 2, further comprising:

a capacitor drain circuit for removing a first residual electric charge from said second capacitor during said first charging cycle and for removing a second residual electric charge from said first capacitor during said second charging cycle.

5. The capacitor discharge system of claim 2, further comprising:

a shaft position sensor;

5 a switch control circuit; and

magnetic material mounted on said motor shaft; whereby

said shaft position sensor detects movement of said

magnetic material corresponding to said rotating

motion of said motor shaft, said shaft position sensor

10 transmits a signal to said switch control circuit, and

said switch control circuit controls said charging

device.

6. The capacitor discharge system of claim 4, further

15 comprising:

a shaft position sensor;

a switch control circuit; and

magnetic material mounted on said motor shaft; whereby

said shaft position sensor detects movement of said

20 magnetic material corresponding to said rotating

motion of said motor shaft, said shaft position sensor

transmits a signal to said switch control circuit, and

said switch control circuit controls said charging

device and said capacitor drain circuit.

7. The capacitor discharge system of claim 2, wherein said discharge switching device is a mechanical switch.

5 8. The capacitor discharge system of claim 7, wherein said motor shaft includes a motor shaft gear, said mechanical switch includes a switch gear, and said switch gear is driven by said motor shaft gear during said rotating motion of said motor shaft to produce a rotating motion of said mechanical switch.

10

9. The capacitor discharge system of claim 5, wherein said discharge switching device is a solid-state switching device.

10. The capacitor discharge system of claim 9, wherein said
15 solid-state switching device includes a plurality of silicon-controlled rectifiers.

11. A capacitor discharge system, comprising:

a first capacitor;

a second capacitor;

5 a first inductor;

a second inductor;

a discharge switching device; and

a charging device; wherein

said charging device places a first electric charge on

10 said first capacitor during a first charging cycle,

said discharge switching device creates a first

electrical path from said first capacitor to said

second capacitor through said first inductor during a

first discharge cycle,

15 said charging device places a second electric charge

on said second capacitor during a second charging

cycle, and

said discharge switching device creates a second

electrical path from said second capacitor to said

20 first capacitor through said second inductor during a

second discharge cycle.

12. The capacitor discharge system of claim 11, further comprising a motor shaft that interacts with a magnetic field generated by a flow of electric current through said first inductor during said first discharge cycle and said second inductor during said second discharge cycle to produce a rotating motion of said motor shaft.

13. The capacitor discharge system of claim 12, wherein said first inductor and said second inductor are electric motor phase windings.

14. The capacitor discharge system of claim 13, further comprising a capacitor drain circuit for removing a first residual electric charge from said second capacitor during said first charging cycle and for removing a second residual charge from said first capacitor during said second charging cycle.

15. The capacitor discharge system of claim 14, further comprising:

a shaft position sensor;

a switch control circuit; and

5 magnetic material mounted on said motor shaft; whereby

said shaft position sensor detects movement of said
magnetic material corresponding to said rotating
motion of said motor shaft, said shaft position sensor
transmits a signal to said switch control circuit, and
10 said switch control circuit directs the activity of
said charging device and said capacitor drain circuit.

16. The capacitor discharge system of claim 15, wherein said
discharge switching device is a solid-state switching device.

15

17. The capacitor discharge system of claim 16, wherein said
solid-state switching device comprises a plurality of silicon-
controlled rectifiers.

20 18. The capacitor discharge system of claim 17, wherein said
plurality of silicon-controlled rectifiers is controlled by said
switch-control circuit.

19. The capacitor discharge system of claim 10, wherein said plurality of silicon-controlled rectifiers is controlled by said switch-control circuit.

5 20. A method of creating an alternating magnetic field in an inductor comprising the steps of:

placing a first electric charge on a first capacitor;

creating a first electrical path between said first capacitor and a second capacitor through an inductor;

10 placing a second electric charge on said second capacitor; and

creating a second electrical path between said second capacitor and said first capacitor through said inductor.

15 21. The method of claim 20, further comprising the steps of:

removing a first residual charge from said second capacitor during said step of placing a first electric charge on said first capacitor; and

20 removing a second residual charge from said first capacitor during said step of placing a second electric charge on said second capacitor.

22. A method of creating an alternating magnetic field in a motor comprising the steps of:

placing a first electric charge on a first capacitor;

5 creating a first electrical path between said first capacitor and a second capacitor through a first inductor;

placing a second electric charge on said second capacitor; and

10 creating a second electrical path between said second capacitor and said first capacitor through a second inductor.

23. The method of claim 22, further comprising the steps of:

15 removing a first residual charge from said second capacitor during said step of placing a first electric charge on said first capacitor; and

removing a second residual charge from said first capacitor during said step of placing a second electric charge on said second capacitor.